



Federal Fleet Composition and Operation

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Washington Auto Show

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Federal Fleet Requirements and Goals

FedFleet Performance and Trends

Strategies for Reducing GHG Emission Reductions

Executive Order 13693

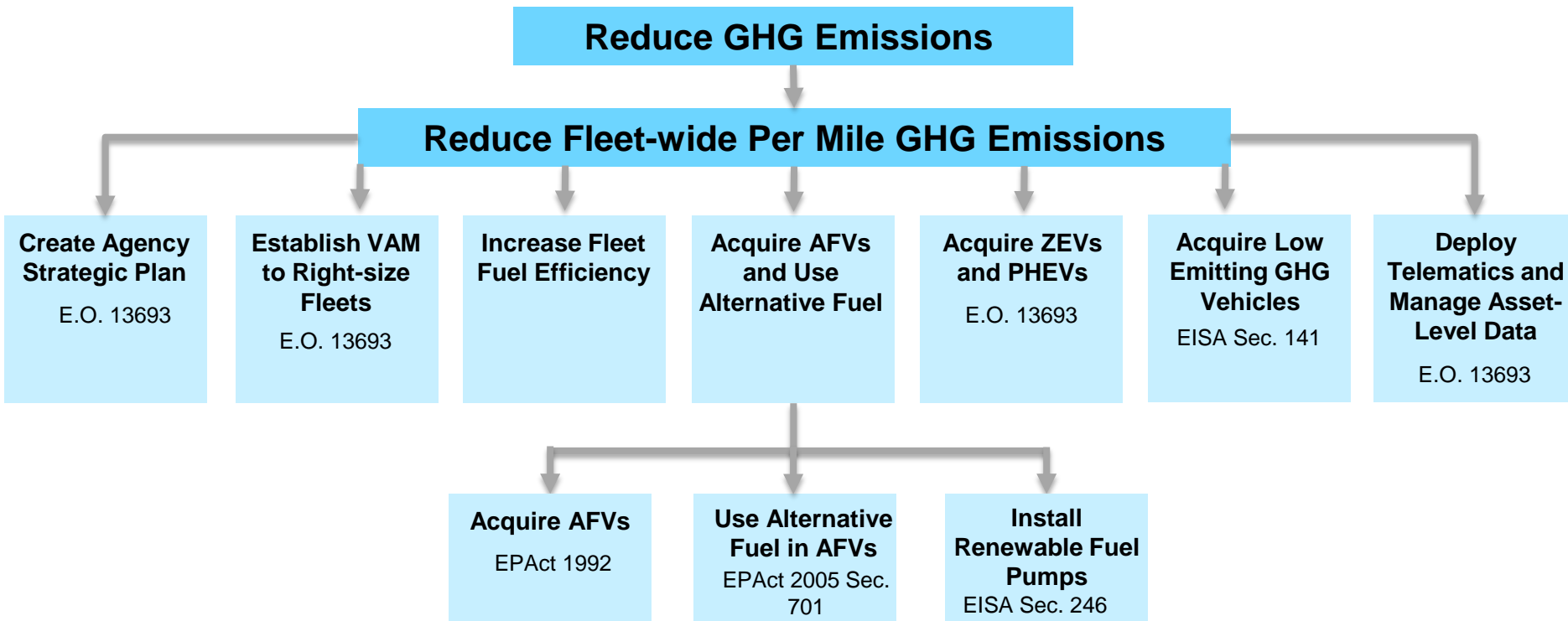
Planning for Federal Sustainability in the Next Decade

- Signed on March 19, 2015
- “Maintain Federal leadership in sustainability and greenhouse gas emission reductions”
- “Expanded and updated Federal environmental performance goals”
- “**Continue to drive national greenhouse gas reductions** and support preparations for the impacts of climate change”

Federal Fleet Requirements- Overview

The overarching Federal fleet goal is to **reduce GHG emissions** [and increase efficiency] across Federal operations

E.O. 13693 Federal fleet metric: **fleet-wide per mile GHG emissions**



E.O. 13693

Flexibility in Reducing GHG Emissions

Old E.O.s 13423 & 13514

E.O. 13693

Overarching Objective

Reduce overall annual fleet **GHG emissions** as part of agency-established reduction target for FY 2008 to FY 2025



Same with updated agency targets

Primary fleet performance metric(s)

Petroleum Reduction

Requires **2 percent annual reduction** from FY 2005 to FY 2020

Alternative Fuel Use

Requires **10 percent annual increase** starting from FY 2005 baseline through FY 2015



Per-Mile GHG Emissions Reduction

FY 17: 4 percent reduction
FY 21: 15 percent reduction
FY 25: 30 percent reduction

“allows agencies to continue to meet their mission requirements while also achieving significant GHG reductions”

Overview of Federal Fleet Sustainability Requirements



	<i>Fleet Requirement</i>	<i>Statute or Executive Order</i>	<i>Description</i>
GHG	Reduce <u>per Mile</u> GHG emissions	E.O. 13693 Sec. 3(g)(ii)	<ul style="list-style-type: none"> • 4% reduction by FY17 • 15% by FY21 • 30% by FY25
	Reduce overall GHG emissions	E.O. 13693 Sec. 2	Reduce fleet GHG emissions as part of agency-established reduction target for FY 2008 to FY 2025
Vehicle Acquisition	Optimum fleet inventory, right-size fleets	E.O. 13693 Sec. 3(g)(iv)	Establish a structured VAM to determine the appropriate size and number of motor vehicles
	Acquisition of ZEVs and PHEVs	E.O. 13693 Sec. 3(g)(v)	<ul style="list-style-type: none"> • 20% of new passenger vehicle acquisitions by FY20 • 50% of new passenger vehicle acquisitions by FY25
	Acquisition of AFVs	EPAct 1992	At least 75 percent of LDVs acquired in MSAs/CMSAs must be AFVs
	Acquisition of low GHG-emitting vehicles	EISA § 141	Prohibits agencies from acquiring vehicles that are not low-GHG-emitting vehicles
AF Use	Alternative fuel use in AFVs	EPAct 2005 § 701	All dual-fueled vehicles must use alternative fuel if reasonably available (i.e., unless waived)
	Alternative fuel infrastructure	EISA § 246	Every federal fleet fueling center must install a renewable fuel pump

Federal Fleet Requirements and Goals

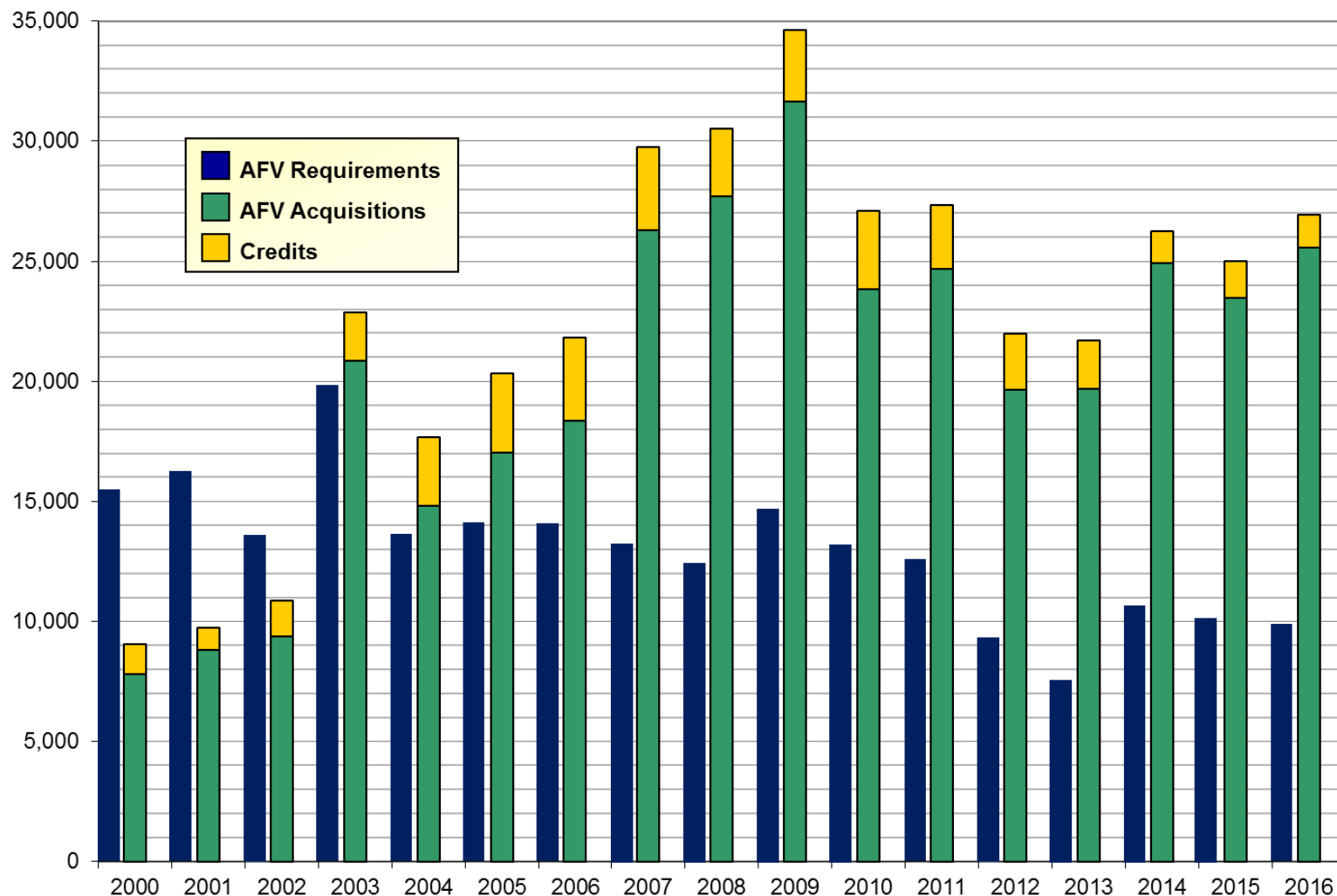
FedFleet Performance and Trends

Strategies for Reducing GHG Emission Reductions

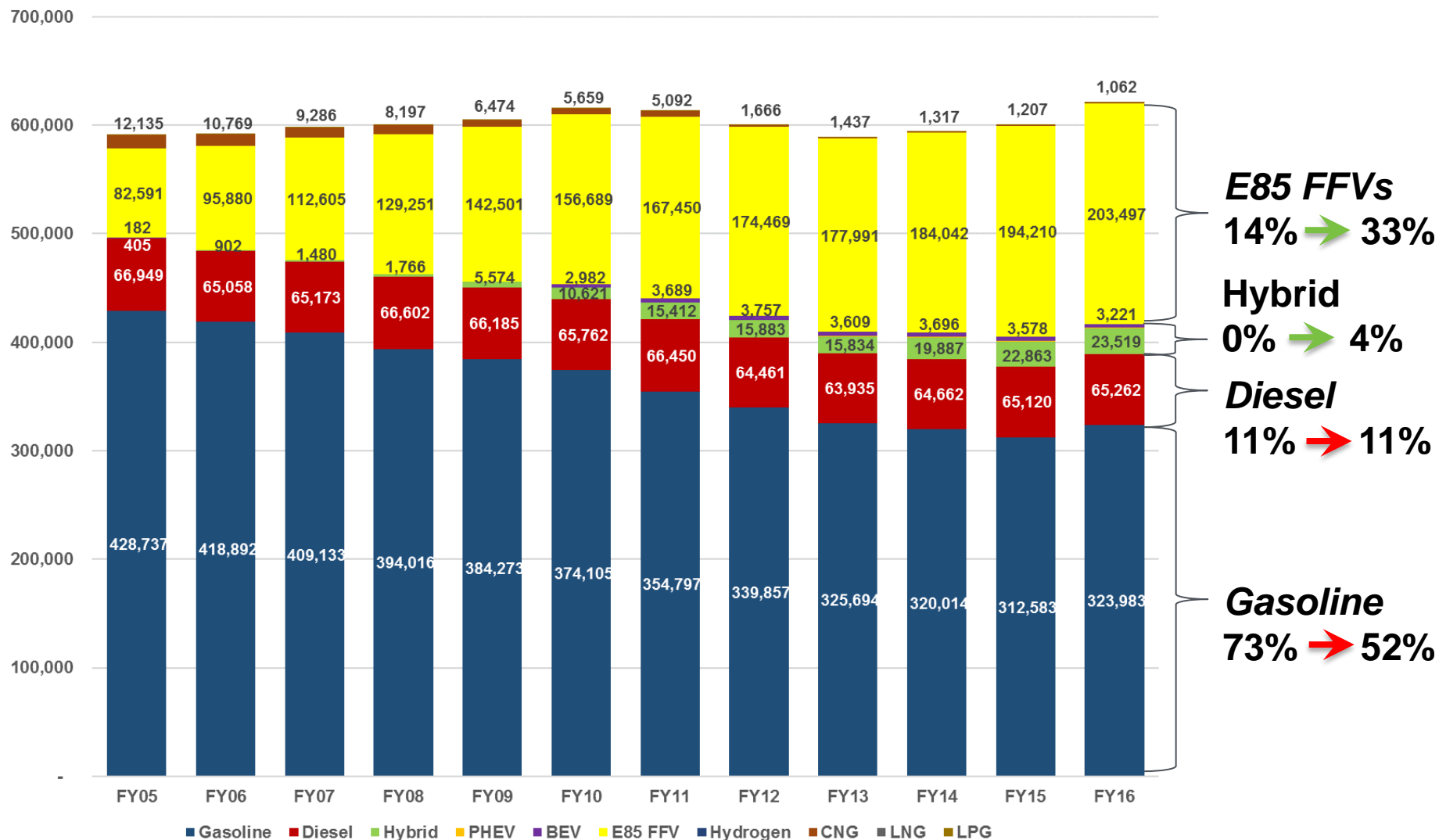
FY 2016 Federal Fleet Compliance Summary

	<i>Requirement</i>	<i>FY 16 Performance</i>
<i>EO 13693 Per-mile GHG Emissions</i>	Reduce fleet-wide per-mile GHG emissions by 2% relative to FY 2014 baseline (for FY16)	 1.1 percent 24 of 32 covered agencies achieved compliance
<i>EPA Act 92 AFV Acquisitions</i>	75% of “covered” Light-Duty Vehicle acquisitions must be AFVs	 203 percent 29 of 31 covered agencies achieved compliance
<i>EPA Act 2005 §701 Alternative Fuel Use in AFVs</i>	All dual-fueled AFVs must use alternative fuel if available (i.e., unless waived)	90 GGE of alternative fuel use per non-waivered dual-fuel AFV (preliminary estimate)

Federal fleets have consistently exceeded EPA 1992 AFV acquisition requirements

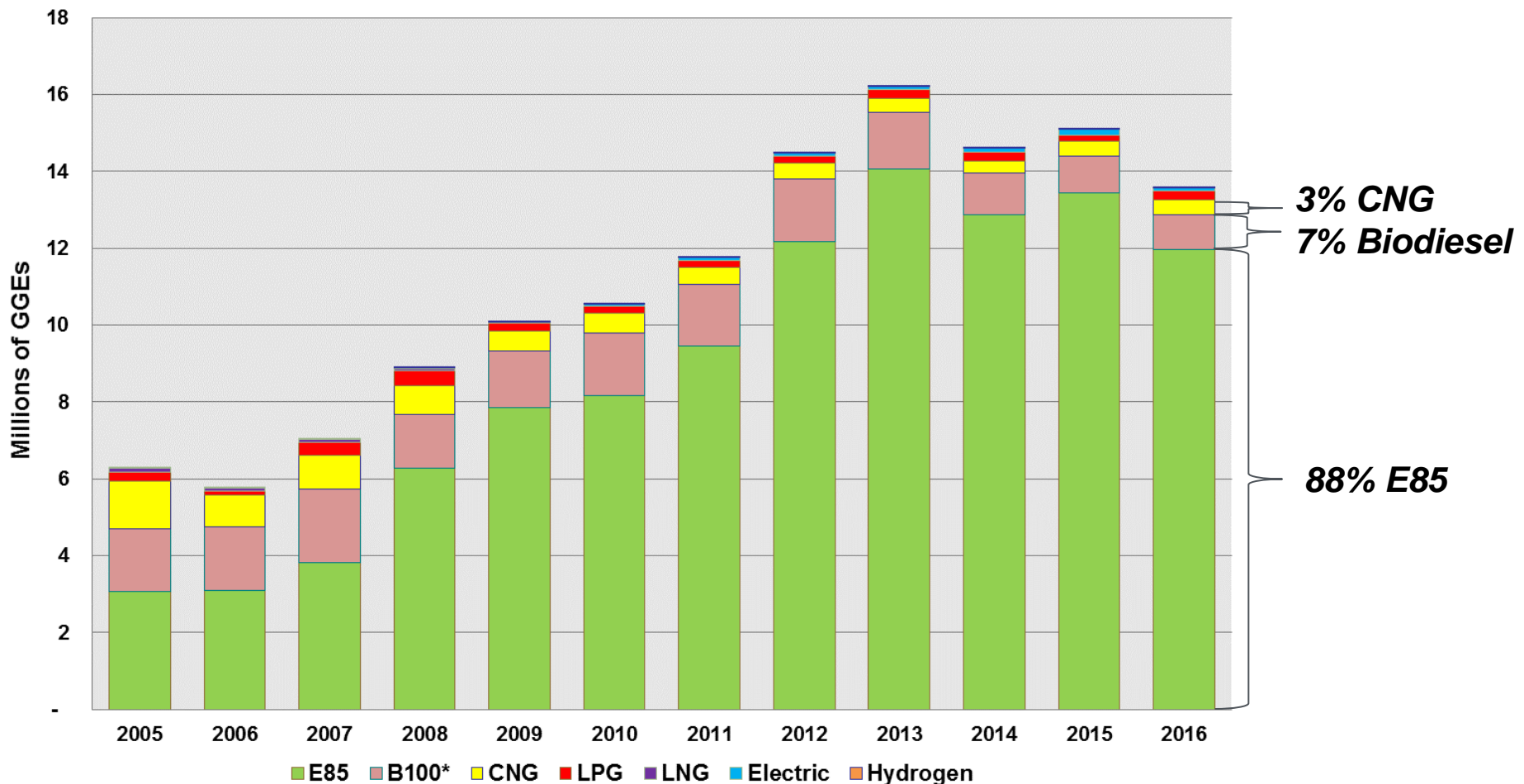


Transformation of the fleet from conventional vehicles to AFVs (FY05-FY16)



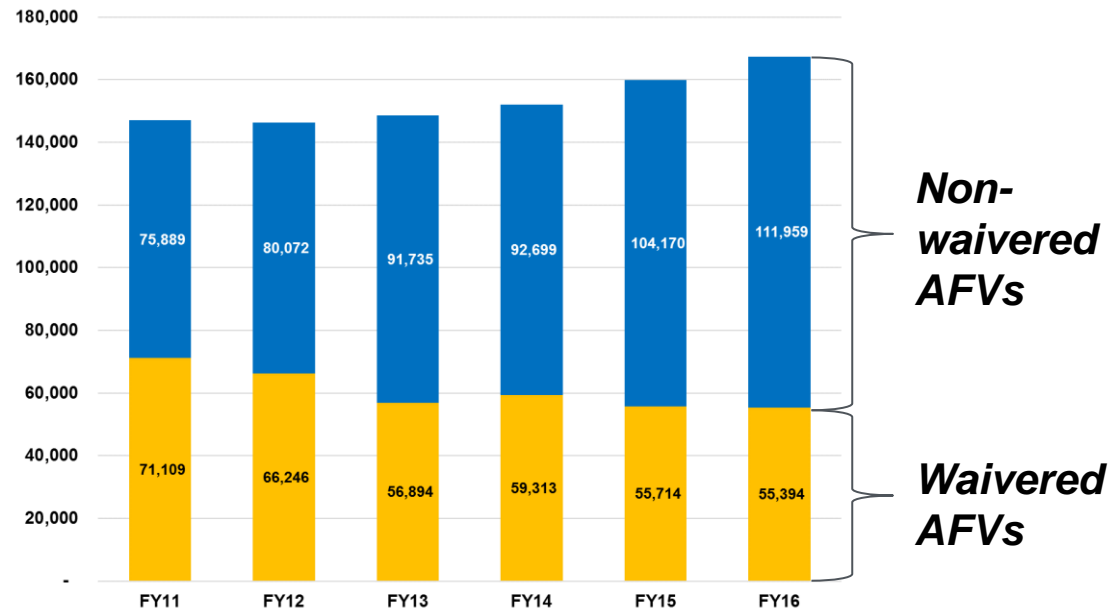
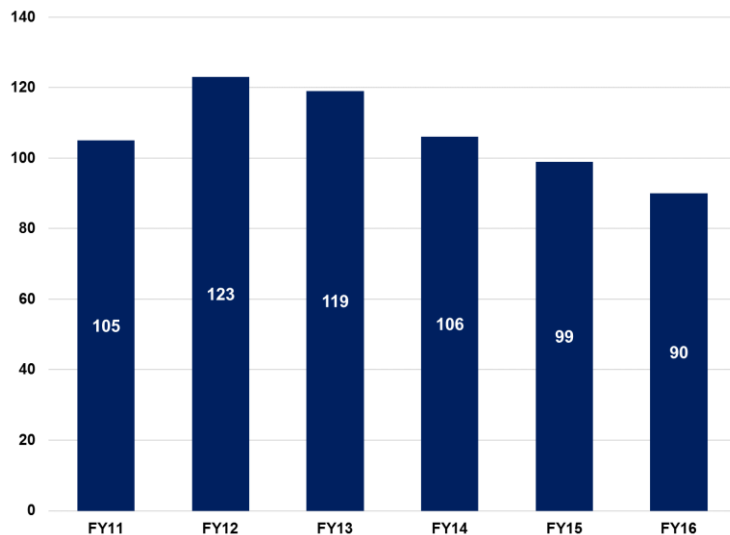
E85 comprises majority of fleet alternative fuel use and increase from FY05 to FY16

Alternative Fuel Consumption by Federal Agencies



EPAct 2005 §701: Large opportunity to increase E85 and alternative fuel use

Federal fleets have steadily increased the number of dual-fueled AFVs subject to EPAct 2005 §701...



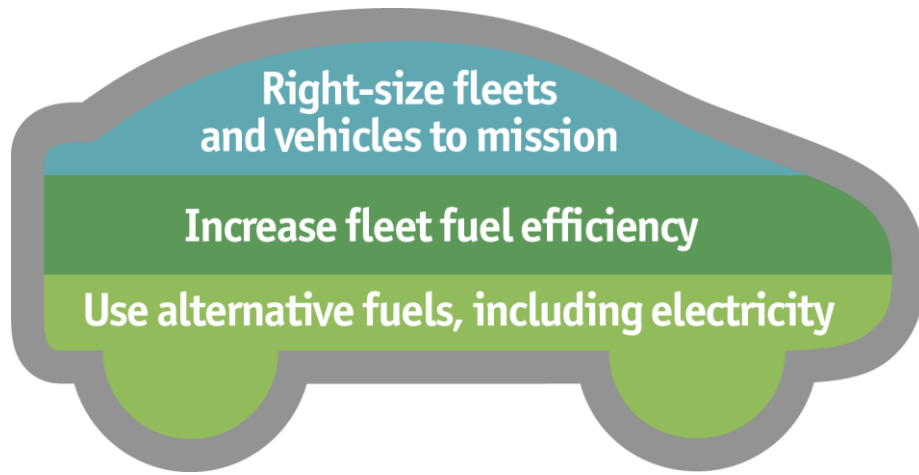
... but the alternative fuel use per non-waivered AFV has been decreasing since FY12

Federal Fleet Requirements and Goals

FedFleet Performance and Trends

Strategies for Reducing GHG Emission Reductions

The Core Principles of GHG Emission Reduction



Right-size fleets and vehicles to mission

Completing VAM to identify and dispose of inefficient vehicles, and replace them with lower GHG emitting vehicles

Reducing vehicle miles travelled

Replacing existing vehicles with higher fuel economy vehicles

Right-sizing vehicles

Includes HEVs, PHEVs, and LSEVs

Operational changes

Improved maintenance

Driving more efficiently

Avoiding Idling

Maximize displacement of conventional fuels w/ alternative fuels

ZEVs & PHEVs and charging infrastructure

E85, CNG, etc. that require infrastructure and AFVs

B20 that requires infrastructure

Principle 1: Right-size fleets to mission

Requirement: VAM study and reports

**Generate a
fleet profile**

**Develop
minimum
utilization
criteria**

**Compare
existing fleet
to actual
mission
requirements**

**Develop
acquisition
plan**

**Review and
Update
VAM**

**Utilization
study**, vehicle
inventory and
**mission
requirements**

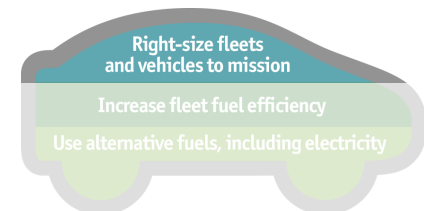
**Validate
vehicle need**
based on
mission
needs, define
baseline of
required fleet

**Dispose or
reassign**
vehicles as
needed

Evaluate
alternatives
where
possible

**Create a multi-
year acquisition
plan**,
recommend
vehicle type and
size by location,
and place AFVs
where fuel is
available

**Update
VAM at
least every
five years
(VAM
reports)**

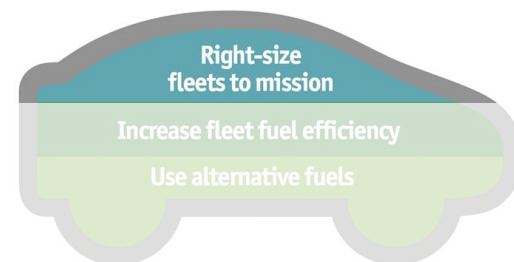


Reduce Vehicle Miles Traveled

Low /No-Cost Solutions for All Vehicle Types

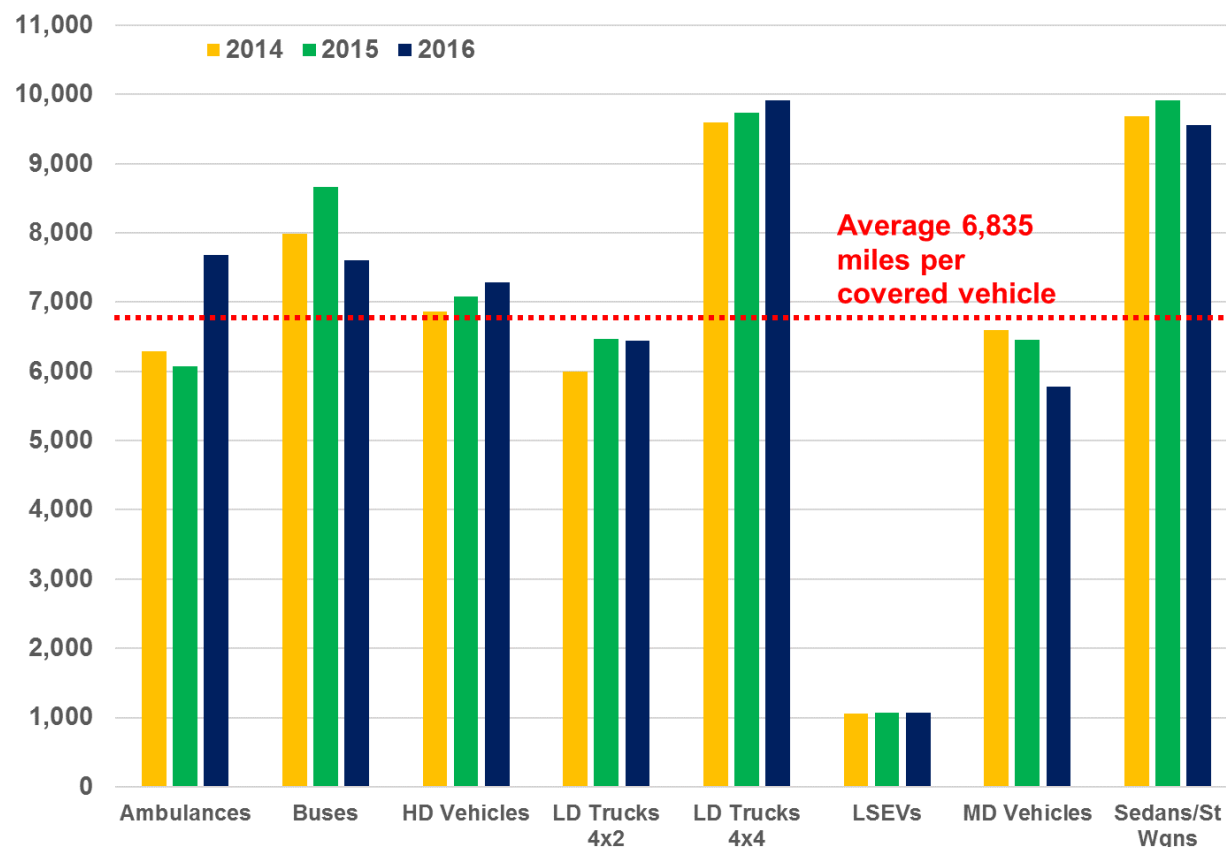


- **Consolidate trips**
 - Eliminate trip duplication
 - Car pooling
- **Eliminate trips**
 - Video and Web conferencing tools
 - Transportation on demand (TOD)
- **Improve scheduling and routing**
 - Optimize travel distance using GPS technology
- **Use mass transportation**
 - Use mass transportation alternatives to eliminate fleet vehicle transportation needs
- **Use agency shuttles**
 - Provide a shuttle service for high-use routes to consolidate trips



Possible opportunities to pool vehicles to eliminate fleet vehicles and reduce costs

- Federal fleet annual average of **6,835 miles per vehicle** is much lower than the **national average of 11,700 miles**
- Low miles per vehicle suggest some opportunities to create vehicle pools

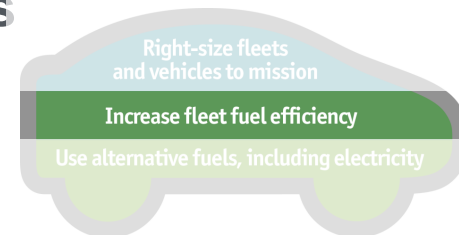


Principle 2: Increase Fleet Fuel Efficiency



- **Acquire higher fuel economy vehicles**

- Downsize vehicles
- Use VAM to determine the optimal types based on mission need



- **Acquire hybrid electric vehicles (HEVs) and plug-in hybrid electric vehicles (PHEVs)**

- Can reduce petroleum and GHG emissions by 30% or more
- Focus deployment of HEVs in areas lacking access to alternative fuel



- **Maintain vehicles to improve fuel economy**

- Perform regularly scheduled and preventative maintenance



- **Drive more efficiently**

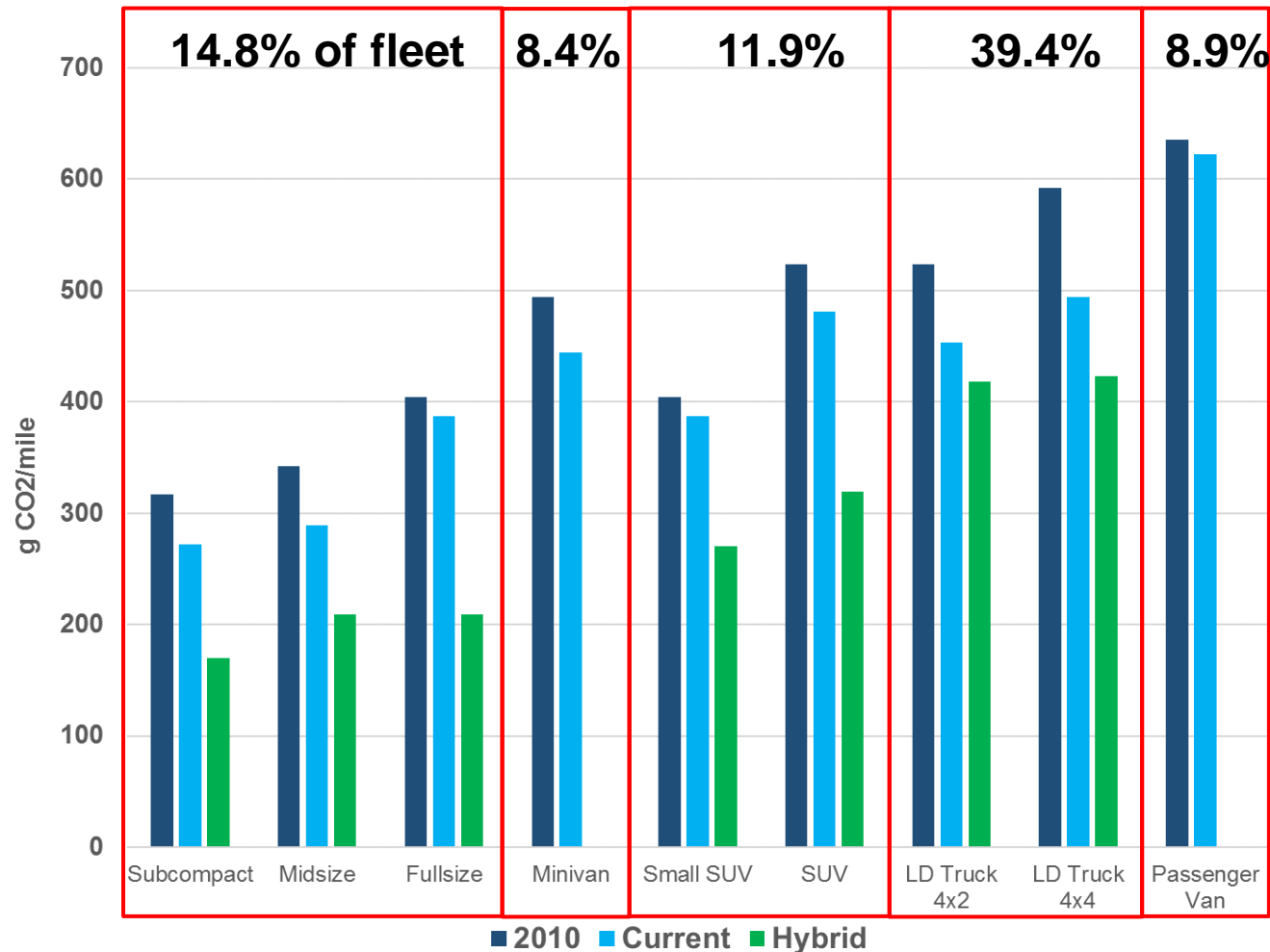
- Use cruise control, avoid fast starts, remove excess weight, etc.

- **Avoid excessive idling**

- Turn off engines when vehicles are stopped or parked
- Use idling reduction technologies for essential heating, cooling, and other auxiliary loads (e.g., APUs)



Example per-mile GHG emissions



Reduce per mile GHG emissions by acquiring more efficient vehicles:

- Right-sizing vehicles to mission
- Replacing older less efficient vehicles
- Acquiring HEVs

Source: fueleconomy.gov

Example per-mile GHG emissions

Compact sedan



2012 Ford Focus **287 g/mile**

Midsize sedan



2012 Chevy Malibu **342 g/mile**



2012 Ford Fusion Hybrid **228 g/mile**

Large sedan



2012 Ford Taurus **423 g/mile**

Passenger Van



2012 Chevrolet Express 1500 8-cyl. **635 g/mile**

Minivan



2012 Chrysler Town & Country **444 g/mile**

Small SUV



2012 Ford Escape **355 g/mile**

Large SUV



2012 Chevy Tahoe 1500 4x4 **523 g/mile**

Light-duty Truck 4x2



2012 Ford F150 **523 g/mile**

Light-duty Truck 4x4

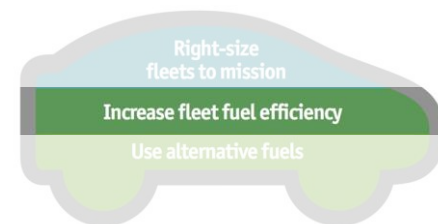


2012 Chevrolet Silverado K15 4WD **592 g/mile**

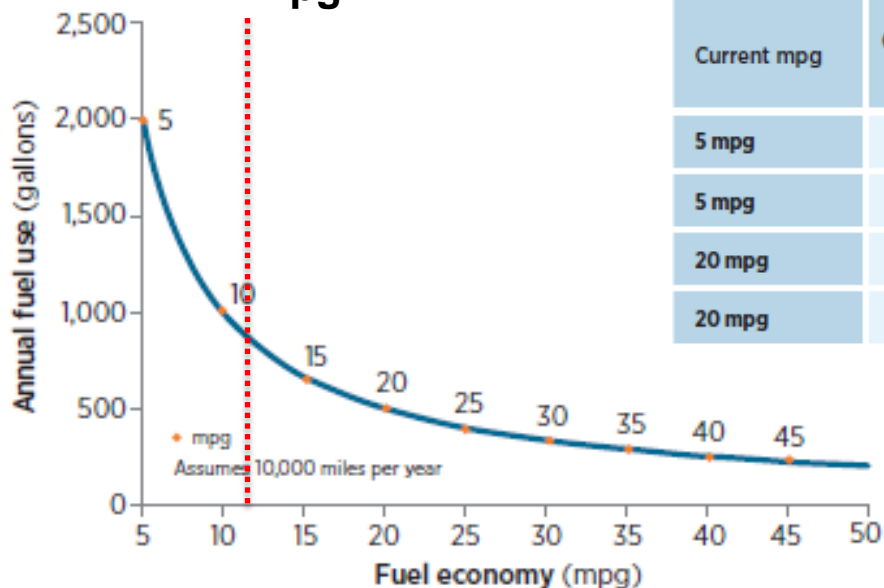
Source: fueleconomy.gov

Increase Fleet Fuel Efficiency

Focus on Increasing the Fuel Efficiency of the Least Efficient Vehicles



***Federal fleet average:
12 mpg***



Current mpg	Current fuel use (gallons)	Replacement mpg	Replacement fuel use (gallons)	Percent improvement in fuel economy	Fuel reduction (gallons)
5 mpg	2,000	10 mpg	1,000	100%	1,000
5 mpg	2,000	6.25 mpg	1,600	25%	400
20 mpg	500	40 mpg	250	100%	250
20 mpg	500	25 mpg	400	25%	100

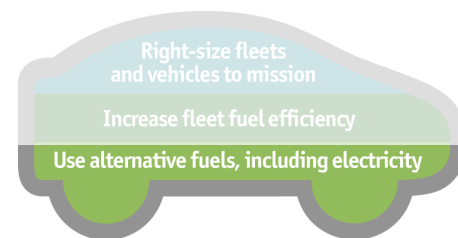
Principle 3: Use Alternative Fuels, Including Electricity

Alternative fuels include but are not limited to:

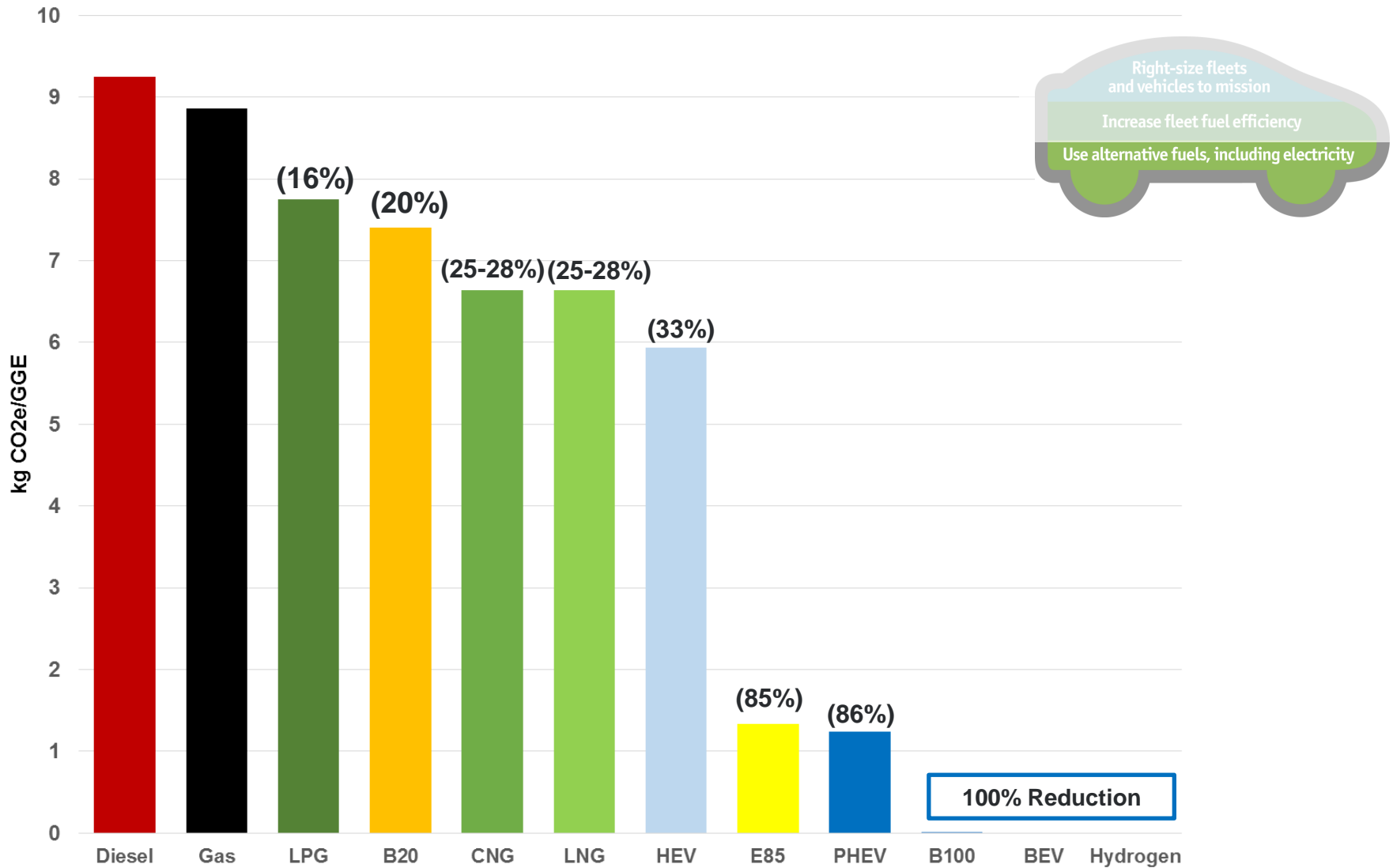
- Electricity
- E85
- Compressed natural gas (CNG)
- Liquefied natural gas (LNG)
- Liquefied petroleum gas or propane (LPG)
- Neat (100%) biodiesel (B100) or biodiesel blends

Dual-fueled AFVs MUST use alternative fuel if available (*EPAct 2005, Section 701*):

- E85 FFVs,
- Bi-fuel CNG or LNG vehicles, and
- Bi-fuel LPG vehicles



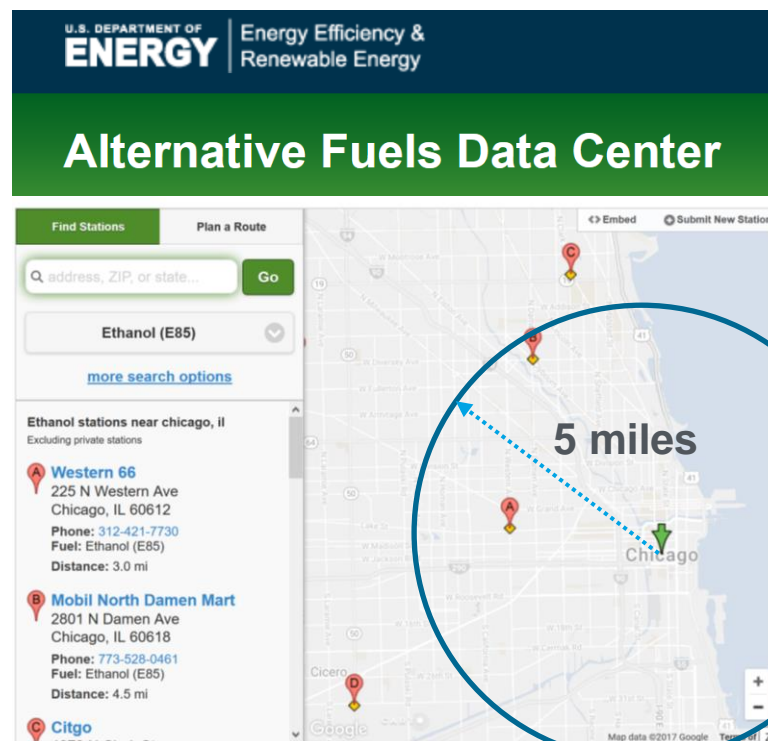
Alternative Fuels – *GHG emission reductions*



Large opportunity to increase alternative fuel use in dual-fueled AFVs

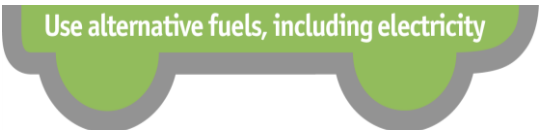
EPA Act 2005 §701: FY 2016 preliminary **estimate of 90 GGE** of alternative fuel use **per non-waivered dual-fuel AFV**

- **FLEETDASH:** Monitor fuel transaction data
- **Lock-out dual-fueled AFVs** from using gasoline pumps
- **Provide locations** and driving directions to alternative fuel stations
 - Tools available at AFDC (www.afdc.energy.gov)
- **Policies and training for local fleet managers** and drivers
- Consider alternative fuel use metrics in **performance reviews and job descriptions**



Balance vehicle acquisition to support strategies with Federal fleet requirements

GHG Emission Reduction Strategy



Vehicle Acquisition Strategy

Dispose or reduce acquisitions to ensure fleet and vehicles are right-sized to mission

Acquire HEVs and higher fuel economy vehicles to reduce GHG emissions per mile

Acquire EVs, AFVs, or diesel vehicles to support AF, biodiesel, or EV strategies

Regulatory Constraints

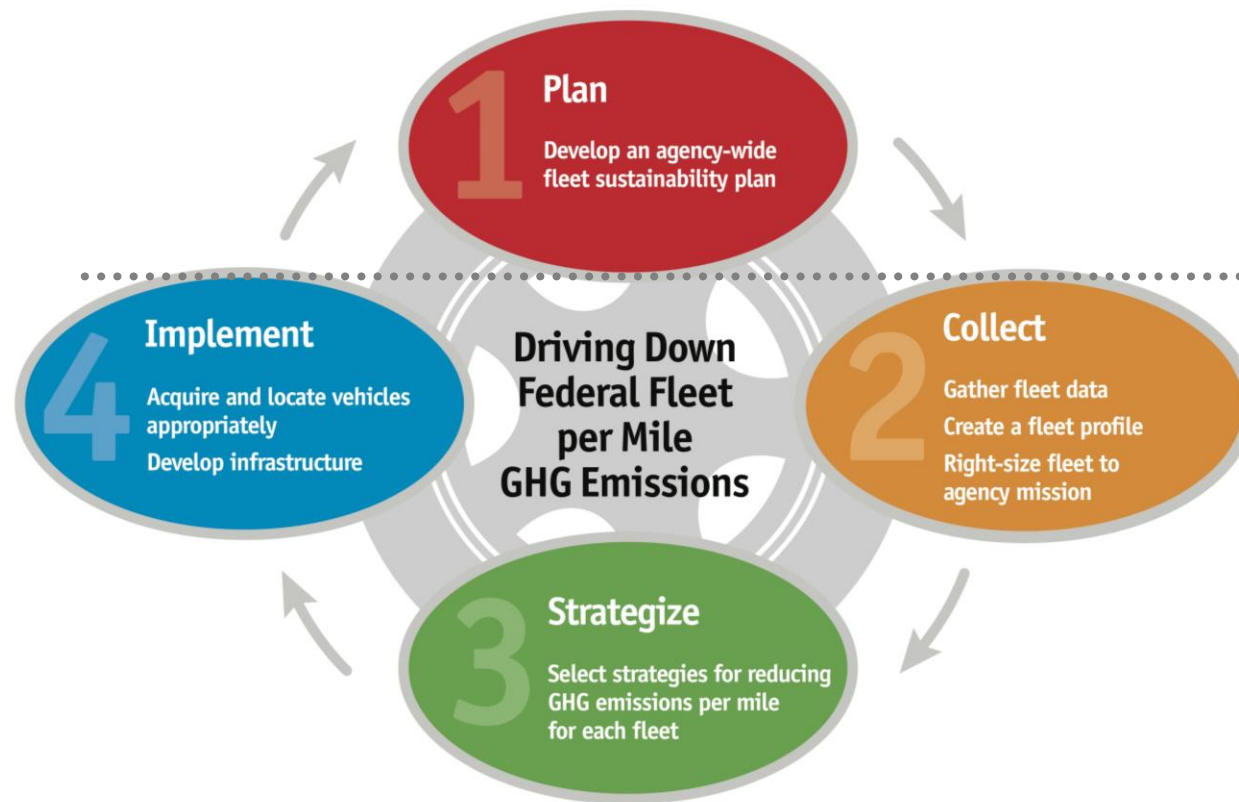
VAM (EO 13693)

Low GHG-emitting vehicles (EISA §141)

AFV acquisitions (EPAAct 92)
ZEVs & PHEVs (EO 13693)

E.O. 13693 Fleet Guidance Framework: Two Documents

Fleet guidance is organized around a cyclical fleet management framework—**plan, collect, strategize, and implement**



E.O. 13693 Guidance Document

- Focuses on E.O. requirements
- 20 pages
- Updated infrequently

Comprehensive Federal Fleet Management Handbook

- Guides fleet managers from requirements to implementation
- 100+ pages
- Can be updated regularly

FEMP Fleet Guidance

federalfleets.energy.gov

- **Guidance and Handbook Documents**

FEMP Fleet Training

federalfleets.energy.gov/information_resources

- **Federal Fleet Management 101 (FEMP First Thursday)**
- **Electric Vehicles (FEMP First Thursday)**
- **EPA Act 2005 Section 701**
- **EISA Section 141**

Fleet Tools

federalfleets.energy.gov/FleetDASH/

- **Fleet Sustainability Dashboard (FleetDASH)**

www.afdc.energy.gov

- **Alternative Fuel Station Locator**
- **TransAtlas**
- **Petroleum Reduction Planning Tool**

Other resources

www.fueleconomy.gov

GHG emissions per mile

Fuel economy information and tips

www.epa.gov/greenvehicles

Vehicle ratings based on GHG emissions/fuel economy

FEMP Federal Fleet Program

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